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CASE STUDY

Effects of initiatives related to the sharing economy on the ecological security of urban residents - Polish experiences

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Abstract – Sharing economy connects the human and material resources available to private individuals, companies, and city organizational units in a coherent way. The aim of this article is to present a theoretical and practical approach to the sharing economy in the context of using this approach to increase the ecological security of cities. In the article, the method of literature studies on the sharing economy and ecological security was used as the method of gathering knowledge, and the case study method was used to verify the theoretical assumptions of this concept based on the example of specific projects implemented by Polish cities in this field. Taking into account the social perspective and the possibilities of using modern information technologies, thoughts on the future of cities should be related to the creation of new community strategies, in which the sharing economy can be helpful. The sharing economy offers a number of solutions that are already visible in the development strategy of Polish cities, which contributes to an improvement in the quality of life in terms of ecological security. Some selected examples are presented in this article.

Keywords – sharing economy, car sharing, food-sharing, city development, ecological security

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Introduction

The development of the sharing economy presents an opportunity as well as a challenge that currently contributes to a change in business models and market functioning (Dorda, 2015). The changes taking place in the sharing economy can completely change the overall economy and improve the quality of life for city dwellers as well as help solve emerging social and ecological problems towards which nobody can be indifferent (Banaszek, 2016).

Supporters of the sharing economy highlight the benefits that it provides: the possibility to earn extra money, meet people, find new friends, and save costs. Proponents of the sharing economy assert that it provides new opportunities for individuals by putting their inactive assets to work, thus earning additional income. For example, an empty room, a car or some tools they do not need to use every day can be shared as underutilized assets and earn money. This allows people to use the assets only when needed and pay for temporary use rather than ownership (Grybaitė and Stankevičienė, 2017).

The development of the sharing economy results from the reasons which include:

- increasing problems related to environmental degradation
- problems related to urban overpopulation
- deteriorating quality of life in cities
- city transportation problems, traffic jams, noise in the cities (Banaszek, 2016).

Sharing economy is based on trust and cooperation. It is thanks to these two values the capitalist business model may begin to change. Historically, cooperation was limited exclusively to the closest family, friends, and neighbors. Currently, these functions are taken over by enterprises, institutions or organizations as well as city organizational units. The life of cities is more and more conditioned by whether their inhabitants will be able to cooperate with each other. People must begin to think more broadly than merely in terms of family or nation, and must believe that those who behave and look completely differently will treat them honestly by respecting contracts and obligations (Montgomery, 2015). This is important because contracts and mutual obligations are an important element of the sharing economy.

Analysis of the latest research that initiates a solution to the problem

There are a lot of scientific papers describing the concept of a sharing economy how it relates to ecological security. They focus on the technical, political and economic aspects of such activities. However, there is a gap with regard to issues connected with how projects in the field of sharing economics initiated by cities and their authorities can affect the level of ecological safety of local residents. This study is an attempt to fill this gap. What follows is an outline of the characteristics of the relevant conceptual categories for further consideration.

The concept of the sharing economy i.e. the shared use of resources or sharing them- is not a new phenomenon on the market. The development of mobile technologies and online communities has made interpersonal communication easier and the exchange of resources has taken on a completely different dimension. The appeal of the sharing economy and shared consumption results from society's increasing willingness to use certain goods and services when necessary (usually on demand) rather than by owning them. The idea means that "you do not have to own something to use it".

When analyzing the sharing economy, researchers very often divide it up. J. Schor lists four main categories that are included in the sharing economy, which include:

- recirculation of goods,
- increasing the use of fixed assets,
- exchange of services,
- sharing production assets (Schor, 2014).

The sharing of resources involves related concepts that are used by various authors to determine this phenomenon, or to emphasize differences in business models. They include:

- collaborative economy – based on cooperation,
- access-based consumption – based on access,
- collaborative consumption – shared consumption,
- peer to peer economy – based on contacts between individuals,
- on demand services – applications (platforms) connecting consumers and suppliers of goods/services directly.

Marcus Felson and Joe L. Spaeth are the authors of the collaborative consumption term and wrote an article entitled *Community structure and collaborative consumption: A routine activity approach* in 1978. They pointed out activities in which one or more people consume goods or services, engaging in this process with other people (Felson, Spaeth, 1978).

Lawrence Lessig is the pioneer of the sharing economy phenomenon, who in this way defined the consumption realized by sharing, exchanging and lending one's own resources without transferring the ownership of the shared goods (Lessig, 2008). The phenomenon of the sharing economy gained more interest in 2010, after the publication

of the book by Botsman and Rogers "What's Mine Is Yours" (2010).

An economy based on cooperation is the broad concept and covers all manifestations of cooperation between people regardless of purpose and form. Botsman (2015), trying to sort out the terminology, describes a collaborative economy as an economic system of decentralized networks of individual users and communities that opens up access to the wealth of unused assets, matching them to needs and omitting traditional intermediaries.

The spheres covered by this concept are production (collaborative production), consumption (collaborative consumption), finances (collaborative finance) and education (collaborative education).

The collaborative economy is, therefore, a very complex and diverse set of phenomena, among which the sharing economy, which constitutes a significant part of shared consumption, stands out. The sharing economy includes the area of collaboration that involves individuals sharing resources and services that are not fully used for free or for a fee (Botsman, 2015).

Without delving into the detailed definitions of "ecological safety", it can be broadly described as a desirable state of the natural environment, free of threats threatening the balance of ecosystems and the biosphere. Safety understood like this is captured on two basic levels. On the negative side, it is limited to eliminating threats to the natural environment. While on the positive side, it is identified with a number of ideas and concepts that would counteract the occurrence of such threats. In the second approach, instead of eliminating threats, it is postulated to change the current socio-economic relations that would not lead to the occurrence of an ecological crisis (Hull, 2008).

This second context for understanding ecological security falls within the idea of sustainable development. It assumes that the socio-economic development of the country should be harmonized with the natural environment (Ciszek, 2012).

Ecological safety can be considered on various levels:

- individual: defining the effects of the relationship between man and nature
- social: examining the consequences of relations between society and its elements (e.g. family, social groups, social communities) and the natural environment
- national (state): defining ecological problems related to local and internal pollution and threats
- international (regional): recognizing the effects of sea pollution, border rivers, cross-border atmospheric pollution (and other environmental elements), migration of plant and animal species, industrial and transport failures
- global: analyzing the consequences of global threats to the biosphere (e.g. ozone thinning, greenhouse effect, climate change, etc.) (Hull, 2008).

The implementation of projects in the field of sharing economy by cities can have a significant impact on environmental security from the above-mentioned perspectives, with particular emphasis from the individual and social perspective and, to a certain extent, from the global perspective.

Aims and methods

The theoretical aim of this article is to determine the areas of urban functioning that can apply the principles of the sharing economy. The cognitive goal is to show how selected cities from Poland implement the sharing economy in practice. The article also has a practical dimension related to the presentation of specific projects related to the sharing economy that has been successful in the Polish reality. It also contains practical recommendations for city authorities who wish to implement similar projects. Therefore, it contributes to the promotion of so-called best practices. The further aim of this article is to indicate the possibility of using projects related to the sharing economy, implemented by cities to improve the ecological safety of their residents. To achieve this goal, a method of literature studies was adopted that, determined the importance of the basic theoretical categories and concepts for the conducted considerations in relation to the understanding of the essence of the economy of sharing and ecological security. For a more complete implementation of the main purpose of this article, the case study method was used, drawing on information available on the Internet. This brought to light some practical examples of activities undertaken by Polish cities related to the sharing economy, which had a positive impact on the increase of ecological safety of their residents. The described projects proved to be successful in Polish reality. They can be treated as so-called best practices, which are worth analyzing and disseminating in order to form a base of experience and knowledge for similar initiatives worldwide.

Discussion and Case Studies

This section of the article will present the case studies of two Polish cities that ran projects related to the economy of cooperation. They can be included within examples of best practices, which should be disseminated due to social benefits and the success that they have enjoyed in Poland so far.

Case study 1. Wrocław as an example of a model car-sharing system based on electric cars

Wrocław car rental is the first publicly available urban rental in Poland based solely on electric cars. It is an innovative project combining car sharing and electromobility (Boner, 2017).

In February 2017, the Polish IT company Enigma signed a contract for a public-private partnership with the Municipality of Wrocław. Less than eight months later, residents and tourists in Wrocław could benefit from this cooperation. The publicly available timed car rental operates in Wrocław under the name Vozilla. Residents have at their disposal 200 Nissan electric cars: 190 Nissan leaf and 10

Nissan e-NV 200 and about 60 special parking spaces. The rental is open all year and operates 24 hours a day, 7 days a week.

As part of the project, the necessary charging infrastructure was also created – about 12 fast charging points, which in the future will also be made available for other users of electric vehicles. The car rental operates similarly to city bike rental – after registering with the system and presenting a driving license, the customer can borrow and return the car to specially marked parking spaces (mainly in the paid parking zone), as well as legal parking spaces on public roads in Wrocław, the so-called free-floating model. Additionally, a partnership with Wrocław Airport allows free parking in the VIP zone, located closest to the entrance to the terminal.

Due to the innovativeness of the service, Enigma has taken over the relocation and charging of cars, so each user rents a “ready-to-go charged car” without having to worry about how and where to charge up. To make the rental service more appealing, the City has implemented some facilities and privileges, including free dedicated parking spaces, accessibility via selected pedestrian roads, as well as entry to some bus lanes.

One of the main challenges for Enigma was the financing such an innovative project on the Polish market. The city of Wrocław, in preparation for this task, allowed for financial support as well as cooperation in the construction of the charging infrastructure – one of the criteria for the evaluation of offers. During proceedings, 5 applications were received and negotiations were conducted with all entities. As a result, 3 companies submitted offers, including two without any financial support from the city. The private partner's remuneration in the analyzed project is the right to receive compensation from the services rendered, including fees from rental clients and the possibility of placing ads on the rented vehicles.

The proceedings conducted by the Municipality of Wrocław within the formula of public-private partnership facilitated such a division of tasks and mitigation of risks in order to optimally delegate the work to the party that would best manage them. Therefore, the risk of construction, availability, and demand was transferred mostly to the Private Partner, and the City of Wrocław took over the design, implementation of traffic organization and maintenance of parking spaces as well as the implementation of privileges for electric cars.

After the first 4 months of operation (04.11.2017-28.02.2018), when in practice the rental company only partially operational, interest in the scheme exceeded the expectations of its operator. Such levels were expected after about 6 months of operation. In the period under discussion:

- the number of registered persons (entitled to rentals) was 23578 (including at the age of 24-38 constituted about 90%)
- the total number of rentals was 82346 (which gives an average of about 686 rentals each day)
- there was a constant upward trend in the number of rentals (from about 330 to over 940 per day)

- the cars traveled 568-575 kilometers (on average, about 6.8 km, but now we observe longer and longer rentals)
- an ecological effect was achieved in the form of a CO₂ emission reduction of approximately 63965 kg.

City Electric Rental Vozilla is part of the implementation of the mobility policy adopted in Wrocław and the concept of a smart city, which aims to encourage residents to give up or significantly reduce the use of their own car in the city center area. The implementation of a complementary form of public transport in Wrocław in the form of 200 publicly available electric cars posed a great challenge both in terms of technology and finances. It would not have been possible had it not been for the courage and financial risk that the private partner agreed to shoulder. Without this commitment, experience, determination, and know-how, there would not have been a project with such impetus and scale. The city supports innovative solutions with soft activities – promotion, privileges for ecological cars as well as assistance in administrative procedures. (information included in the presentation: "Vozilla – nomination for the Top investment 2018 competition").

Case study 2: Establishment of the food-sharing place in the town of Mikołów

Mikołów is a city of 40,000 inhabitants located in south-eastern Poland in the area of Upper Silesia. In March 2018 in Mikołów the "Sharing connects" project began. A location opened where people can bring and give away unnecessary books, clothes, and food that has not expired. A person bringing a given item can also take away what s/he needs from the spot. Everything is for free. The premises operate from 7.30 am to 7.00 pm. The initiative is based on the Western European concept of food-sharing, albeit in a slightly expanded version. The point is that food, which may sometimes be bought in excess and which will never be consumed before the expiry date, does not go to waste. It just needs to be dropped off at a designated point. From there, it can be taken home by someone in needs. The authorities of Mikołów emphasize that the campaign is primarily about raising public awareness and drawing attention to the problem of food waste. The municipal authorities of Mikołów also want to promote positive social attitudes and simple human kindness, selflessness, and empathy (Czuba, 2018).

The poster promoting the described campaign provides information about what food products can be brought along. These are food products that have exceeded the date of minimum durability but have not exceeded the expiration dates, products that are sealed or placed in containers, own products like cakes, soups, but also cheese, yogurts, and cottage cheese. You should not bring raw, rotten and out-of-date food and alcohol (Wojśa, 2018). In addition, this campaign was promoted by means of a short film posted on Twitter and YouTube.

The presented case studies from Poland are consistent with the concept of sustainable development. Interesting activities in the field of sustainable development are carried out in Freiburg in Germany. Freiburg has the aim to be 'a city of short distances' with a strong orientation to walking,

bicycling and public transport, car-free areas and high levels of accessibility for people of all ages. This involves three major strategies: restricting the use of cars in the city, providing effective alternative transport like a tram and car sharing (East, 2018).

Conclusions

Taking into account the above-mentioned case studies of Polish cities, it can be stated that municipalities may take initiatives related to the sharing economy. Some of these projects can be implemented on the basis of public-private partnership (PPP). The use of public-private partnerships is supported by the fact that such projects offer mutual benefits to public and private entities and develop cooperation between them. They provide local communities with wider access to specific services or goods. They make a proper division of risks, costs, and benefits between partners involved in PPP projects. In addition, they provide private entities with financial revenues for services rendered and the public sector control over the quality of goods supplied to local communities (Jelencic et al., 2017). An example of the project carried out on the basis of public-private partnership is Vozilla electric car-rental company operating in Wrocław, described earlier. The success of such projects is determined by the preliminary recognition of the existence of available technologies and services on the market, which the city is interested in providing. Then, it is important to share the risks between the city and the potential implementer and the operator providing the car-sharing service. An important element of the success of this type of services is offering those using the rented car's benefits in the form of parking spaces, the possibility of moving on the bus lanes. The city launching a system of car sharing must also actively promote this type of undertaking in order to encourage residents to use car rental opportunities.

Smaller projects related to the popularization of the sharing economy can be carried out independently by cities. An example of one such initiative is the city of Mikołów and activities undertaken in this field. The authorities of this city have made the property available, which is communal property, for the functioning of the food-sharing place. Using leaflets and posters, they informed residents about its operation and the rules of using it.

The project related to the launching of a car-sharing car rental in Wrocław has its crucial significance for strengthening the ecological safety of the inhabitants of this city. This is due to the fact that the cars rented in it have an electric drive and do not emit exhaust gases, which further strengthens the ecological effect of this venture. It should also be expected that the wider use of cars from this rental will have a positive impact on reducing the number of conventional cars traveling on the streets of Wrocław, which will also have an impact on the decrease of the level of exhaust and the reduction of the smog phenomenon.

Co-sharing vehicles not only reduces greenhouse gas emissions but also provides new mobility opportunities for

people on low incomes and is a desirable element of sustainable development. Car sharing, commuting to work, bike and motorcycle sharing have become popular. Local governments developed a plan for integrated mobility, support infrastructure and regulations for shared transport, which can be used to support public transport. Car sharing studies show that a single shared car can replace up to 10 individually used cars. City support for companies offering shared vehicles, for travel planning applications and transport charges integrates shared transport with public transport. It is expected that systems of shared scooters and public bikes will reduce environmental problems, such as noise or air pollution, which is important for the environmental safety of residents, as well as problems with parking and traffic in modern cities.

In turn, the food-sharing project implemented in the city of Mikołów also has a positive impact on the ecological security of the inhabitants of this city and on a global scale. This campaign reduces food waste and the necessity for waste disposal companies to collect it from garbage containers. The environmental safety issue is decomposition of food thrown into the garbage, the fumes caused by this phenomenon, and the attraction of wild rodents, i.e. mice and rats that carry diseases dangerous to people.

Reducing food waste thanks to food-sharing scheme also has a global dimension because to a certain extent it also contributes to reducing crops using artificial fertilizers, which has a positive impact on crops, but also has a negative effect on soils and groundwater pollution. Similar issues concern the consumption of animal products, which are bred using modern methods supported by the use of antibiotics and hormones, which cause the animals to gain weight rapidly but have a negative effect on the health of people consuming these products.

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